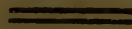


Government
Land
Survey.

TA
622
B65



S. J. BLOCHER.

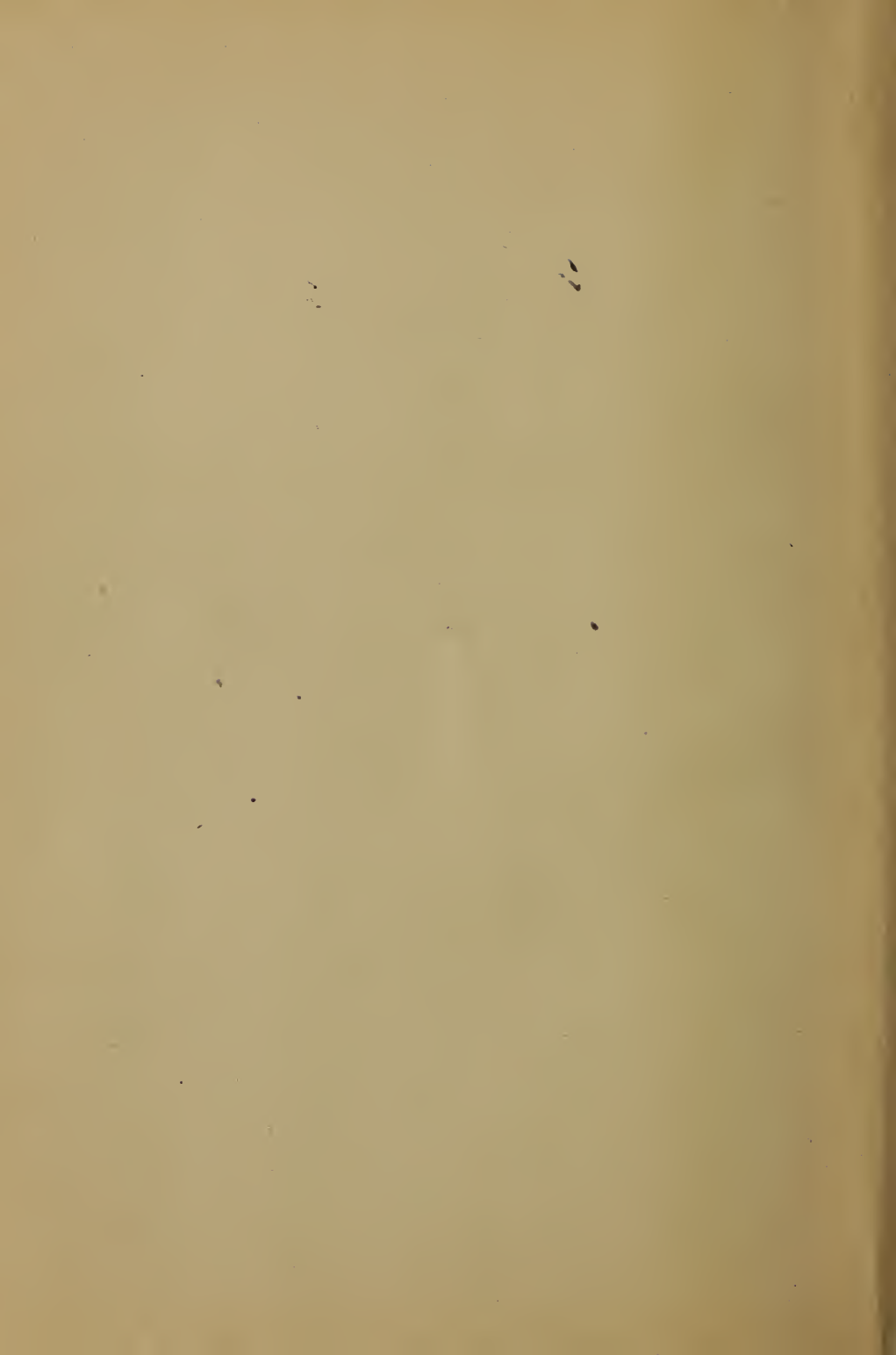
LIBRARY OF CONGRESS.

Chap. *TA622* Copyright No.

Shelf *B65*

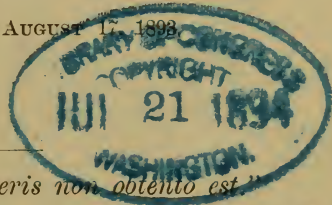
UNITED STATES OF AMERICA.





A THEORETICAL AND PRACTICAL
TREATISE
ON THE
GOVERNMENT LAND SURVEY
FOR SCHOOL PURPOSES.

✓
BY S. J. BLOCHER,
BENTONVILLE, ARK., AUGUST 17, 1893



—
"Scientia sine multo operis non obtento est."
—

19989-2

CHICAGO:
RAND, McNALLY & COMPANY, PRINTERS
1894.

1

Copyright, 1894, by S. J. Blocher.

TA 622

.B65

5-23312

PREFACE.

The object and scope of this work is not to make surveyors of the pupils, but to meet the requirements of the law contained in the bill introduced into the Legislature by Hon. John Black of Bentonville, Ark., and by their wisdom passed in the Assembly of 1893.

The law states in substance that the method of the Government Land Survey, or the method of locating and describing land as surveyed by the Government, shall be taught in the public schools of Arkansas. (See School Law, page 85, concerning Government Land Survey.)

In compiling this work I have endeavored to explain and illustrate fully every point therein. I have gone beyond the method of merely locating and describing the lands of Arkansas, and have given the Government Land Survey in full.

After completing our work on the Government Land Survey, such information in regard to land has been

Preface.

given as is thought every parent, teacher, and pupil should have, such as valid deeds, mortgages, and abstracts showing the practical use of the Survey, as well as instilling into the minds of the young the forms of such valuable papers.

In presenting this work to the public I trust it will meet the approbation of all.

BENTONVILLE, ARK., August 17. 1893.

INDEX.

	Page
Bearing, - - - - -	55
Base Line, - - - - -	27
Derivation of Titles, - - - - -	10
Fractional Forty, - - - - -	57
First Meridian and Base Line, - - - - -	22
First Specific Boundaries, - - - - -	11
Guide Meridian and Correction Line, - - - - -	64
Guide Meridian, - - - - -	65
History of Public Domain, - - - - -	9
History of Surveying, - - - - -	14
How Sections Are Described, - - - - -	42
Land, or Surveying, Districts, - - - - -	24
Lot, - - - - -	49
Land District Defined, - - - - -	25
List of Unsurveyed States, - - - - -	70
Numbering of Sections, - - - - -	42
Preliminary Steps toward Union of the Colonies, -	12
Principal Meridian, - - - - -	26

	Page
Range Lines, - - - - -	31
Secondary Land District, - - - - -	25
Second Method of Describing Land, - - - - -	52
Surveyor-General, - - - - -	24
Township Lines, - - - - -	31
Township, - - - - -	39
Township, Politic, - - - - -	39 and 56
Township, Congressional, - - - - -	40
Table of Measurement, - - - - -	44
Table of Meridian and Base Lines, - - - - -	68

ADDENDA.

Abstract, - - - - -	78
Full Covenant Warranty Deed, - - - - -	75
Quit-Claim Deed, - - - - -	76
Real Estate Mortgage, - - - - -	78

ABBREVIATIONS.

PRIN. MER.—PRINCIPAL MERIDIAN.

B. L.—BASE LINE.

STAND. P.—STANDARD PARALLEL.

COR.—CORRECTION LINE.

T.—TOWNSHIP.

R.—RANGE.

5TH PRIN. MER.—5TH PRINCIPAL MERIDIAN.

SEC.—SECTION.

GOVERNMENT LAND SURVEY.

CHAPTER I.

HISTORY OF PUBLIC DOMAIN.

ARTICLE 1. In order that we may take an intelligent journey through every step of the Government Land Survey, and that, after taking this enjoyable and instructive journey, we may look upon the Government Land Survey as being interesting and very simple, let us go back and begin our journey at a period of time when there were no established lines as we have them at present. Let us also investigate the history of the "Public Domain;" watch it as it develops; note the first established boundaries; when it was

first titled "Public Domain," and how we obtained our title to it

DERIVATION OF TITLES.

ART. 2. The English, by reason of the voyages of the Cabots in 1498, acquired the title of first discoverers to the country extending from the 38th to the 67th degrees of north latitude. The English government began the work of taking possession of America by colonization.

The first charter was granted by Queen Elizabeth, March 25, A. D. 1584, to Sir Walter Raleigh, known since as the North Carolina charter. Then followed a series of grants and charters to individuals and companies, under which the colonies comprising the thirteen original States of the American Union and their western land were acquired. The title to our national domain comes, first, by discovery of the Cabots; second, by discoveries and colonization under grants, authorizations, and charters from England, Holland, France, Sweden, and Spain, and treaties and conventions thereafter; third, by

revolution in 1776, and confirmation through and by the definitive treaty of peace at Paris with Great Britain, September 3, 1783, whereby the crown of Great Britain recognized the independence of the United States; fourth, by purchase from France of the province of Louisiana, April 30, 1803; fifth, by purchase from Spain of the East and West Floridas, February 22, 1819; sixth, by annexation of the Republic of Texas, December 29, 1845; seventh, by the treaty of Guadalupe Hidalgo, February 2, 1848; eighth, by purchase from the Republic of Mexico (the Gadsden purchase) of the Messilla Valley, December 30, 1853; ninth, by purchase from the Empire of Russia of Alaska, March 30, 1867.

The national domain amounts to about 4,000,000 square miles; the land surface is estimated at 3,586,006 square miles.

FIRST SPECIFIED BOUNDARIES.

ART. 3. As you have seen, a series of grants followed, extending from March 25, 1584, till colonization ceased. None of these grants, however,

specified definite territory prior to the year 1603. By the charter granted by Henry IV. of France to Pierre du Gast in 1603, North America, between latitude 40° and 46° , was called under the grant "Acadia." This was the first grant with specified boundaries.

In 1606, April 10th, James I. of England made a grant for the establishment of two colonies, "London and Plymouth Companies." The territorial grant of the London Company covered a strip of sea-coast fifty miles broad, extending from the 34th to the 41st parallels. The Plymouth Company was assigned the territory between the 38th and 45th parallels. Each grant covering in part the same territory.

Other specific grants were given after this from time to time until the thirteen original colonies were established.

PRELIMINARY STEPS TOWARD UNION OF THE COLONIES.

ART. 4. In 1643 the colonies of Massachusetts, Plymouth, Connecticut, and New Haven formed

a league which existed for forty years under regular form and with a congress of delegates.

A congress of governors and commissioners was held in Albany, N. Y., in 1722; also a congress of colonial commissioners met in Albany, N. Y., in 1754. They resolved that a union of the colonies was absolutely necessary for their protection and preservation.

October 7, 1765, delegates from nine colonies assembled in a congress at New York City and adopted a "Declaration of Rights" on the question of taxation.

On the 5th of September, 1774, delegates from eleven of the colonies met in Carpenter's Hall, Philadelphia, and adopted a resolution recommending the suspension of commercial intercourse with Great Britain till the wrongs of the colonies should be redressed.

On the 10th of May, 1775, the second Colonial Congress of delegates from thirteen colonies assembled in Philadelphia. They voted to raise 20,000 men and means to support them.

On Tuesday, July 2, 1776, the Continental Con-

gress in Philadelphia— “*Resolved*, That these United Colonies are, and of right ought to be, free and independent States; that they are absolved from all allegiance to the British crown, and that all political connection between them and the states of Great Britain is, and ought to be, totally dissolved;” and a committee was raised to draft a Declaration of Independence, which was signed by fifty-six members July 4, 1776, in the state-house at Philadelphia, Pa.

The states, July 4, 1776, becoming successors to the colonies and crown rights to unappropriated or crown lands lying to the westward of their recognized western boundaries, and possessing such lands severally, transferred them by deed of cession to the United States to be disposed of for the benefit of all the people. Thus the first of the “Public Domain” was formed.

HISTORY OF SURVEYING.

ART. 5. Eight years had now passed since the incipiency of the public domain, and no method of surveying had yet been inaugurated. The

time had come when it was necessary that some method of locating definitely and disposing of the public land properly should be established. Hence Congress, in 1784, took a step toward the founding of this system.

The present system of survey of the public lands was inaugurated by a committee appointed by the Continental Congress, and consisting of the following delegates :

Hon. Thomas Jefferson, chairman, Virginia; Hon. Hugh Williamson, North Carolina; Hon. David Howell, Rhode Island; Hon. Elbridge Gerry, Massachusetts, Hon. Jacob Read, South Carolina.

On the 7th of May, 1784, this committee reported "an ordinance for ascertaining the mode of locating and disposing of lands in the western territory, and for other purposes therein mentioned." This ordinance required the public lands to be divided into "hundreds" of ten geographical miles square, and those again to be subdivided into lots of one mile square each, to be numbered from 1 to 100, commencing in the

northwest corner, and continuing from west to east and from east to west consecutively, as shown in the following diagram:

Fig. A

1	2	3	4	5	6	7	8	9	10
20	19	18	17	16	15	14	13	12	11
21	22	23	24	25	26	27	28	29	30
40	39	38	37	36	35	34	33	32	31
41	42	43	44	45	46	47	48	49	50
60	59	58	57	56	55	54	53	52	51
61	62	63	64	65	66	67	68	69	70
80	79	78	77	76	75	74	73	72	71
81	82	83	84	85	86	87	88	89	90
100	99	98	97	96	95	94	93	92	91

This ordinance was considered, debated, and amended, and reported to Congress April 26, 1785, and required the surveyors “to divide the said territory into townships of seven miles square, by lines running due north and south, and others crossing these at right angles. * * * The

plats of the townships, respectively, shall be marked by subdivisions into sections of one mile square, or 640 acres, in the same direction as the external lines, and numbered from 1 to 49.

* * * And these sections shall be subdivided into lots of 320 acres." This is the first record of the use of the terms "township" and "section."

May 3, 1785, on motion of Hon. William Grayson of Virginia, seconded by Hon. James Monroe of Virginia, the section respecting the extent of townships was amended by striking out the words "seven miles square" and substituting the words "six miles square." The records of these early sessions of Congress are not very full or complete; but it does not seem to have occurred to the members until the 6th of May, 1785, that a township six miles square could not contain forty-nine sections of one mile square. At that date a motion to amend was made, which provided, among other changes, that a township should contain thirty-six sections, and the amendment was lost. The ordinance as finally passed, however, on the 20th of

May, 1785, provided for townships six miles square, containing thirty-six sections of one mile square. The first public surveys were made under this ordinance. The townships, six miles square, were laid out in ranges, extending northward from the Ohio River, the townships being numbered from south to north and the ranges from east to west. The region embraced by the surveys under this law forms a part of the present State of Ohio, and is usually styled "The Seven Ranges." In these initial surveys only the exterior lines of the townships were surveyed, but the plats were marked by subdivisions into sections of one mile square, and mile corners were established on the township lines. The sections were numbered from 1 to 36, commencing with No. 1 in the southeast corner of the township, and running from south to north in each tier to No. 36 in the northwest corner of the township, as shown in the following diagram:

Fig. B

36	30	24	18	12	6
35	29	23	17	11	5
34	28	22	16	10	4
33	27	21	15	9	3
32	26	20	14	8	2
31	25	19	13	7	1

The surveys were made under the direction of the geographer of the United States.*

The act of Congress approved May 18, 1796, provided for the appointment of a "surveyor-general," and directed the survey of the lands northwest of the Ohio River, and above the

* The first officer in charge of the Public Lands was called the geographer of the United States. He was appointed under the ordinance of May 20, 1785. Thomas Hutchins was the first and only incumbent of the office.

mouth of the Kentucky River, "in which the title of the Indian tribes has been extinguished." Under this law one-half of the townships surveyed were subdivided into sections, "by running through the same, each way, parallel lines at the end of every two miles, and by making a corner on each of said lines at the end of every mile," and it further provided that the "sections shall be numbered respectively, beginning with No. 1 in the northeast section and proceeding west and east alternately through the township with progressive numbers till the thirty-sixth be completed." This method of numbering sections, as shown in Fig. 8, page 41, is still in use.

The act of Congress approved May 10, 1800, required the "townships west of the Muskingum, which * * * are directed to be sold in quarter-townships, to be subdivided into half-sections of 320 acres each, as nearly as may be, by running parallel lines through the same from east to west and from south to north at the distance of one mile from each other, and making corners at

the distance of each half-mile on the lines running from east to west, and at the distance of each mile on those running from south to north.”

The act of Congress approved February 11, 1805, directs the subdivision of the public lands into quarter-sections.

The act of Congress approved April 25, 1812, provided “that there shall be established in the Department of the Treasury an office to be denominated the General Land Office, the chief officer of which shall be called the Commissioner of the General Land Office.”

The act of Congress approved April 24, 1820, provides for the sale of public lands in half quarter-sections, and requires that “in every case of the division of a quarter-section the line for the division thereof shall run north and south, * * * and fractional sections containing 160 acres and upward shall in like manner, as nearly as practicable, be subdivided into half quarter-sections, under such rules and regulations as may be prescribed by the Secretary of the Treasury;

but fractional sections containing less than 160 acres shall not be divided.''

The act of Congress approved April 5, 1832, directed the subdivision of the public lands into quarter-quarters, or tracts of forty acres each.

From time to time Congress has corrected this system, as difficulties presented themselves, till we have our present method of land survey.

In 1803 Capt. Jared Mansfield,* having been appointed surveyor-general of the Northwest Territory, devised a plan for surveying and recording such parts of a section as were offered for sale. This was one more step toward the completion of the present system, and is still adhered to.

FIRST MERIDIAN AND BASE LINES.

The first meridian was fixed in 1786. Three base

*Under the act of May 18, 1796, creating the office of surveyor-general, Rufus Putnam, in 1797, was appointed surveyor-general of the Northwest Territory. He remained in office until 1803. Capt. Jared Mansfield succeeded as surveyor-general from 1803 to 1813. Under Capt. Mansfield, assisted by Mr. Jefferson, many and important changes and improvements were made in the rectangular system of survey. Josiah Meigs held this office from 1813 to 1815, and Edward Tiffin from 1815 to 1825. Under these the sections of the country were laid out.

lines connecting with this were established in the same year.

You have now seen the ordinance undergo its various changes, and are ready to investigate the system as it exists at present.

CHAPTER II.

PRESENT SYSTEM OF LAND SURVEY.

LAND, OR SURVEYING, DISTRICTS.

ART. 6. The entire domain, or territory, to be surveyed must be divided into "land districts,"* or "surveying districts," if it is too extensive to be maintained in one, or if its natural divisions are such as to require it to be thus divided.

SURVEYOR-GENERAL.

ART. 7. In each land district † a surveyor-general is appointed, who superintends all surveys made in his district. He must give bond

* May 7, 1822, the first land or surveying district was created. It was the State of Ohio.

† These land or surveying districts are closed by act of Congress when all the public lands are surveyed, and certain archives therein transferred to the State in which the lands lie.

and take the oath of his office. He appoints deputy surveyors, who go into the fields and do the actual work. They are also put under oath as to the validity of work done.

LAND DISTRICTS DEFINED.

ART. 8. A land district, or surveying district, is a large body of land set apart all of which shall be sectionized according to one principal meridian and base line. Often it comprises just a State; sometimes two or more States and parts of States; occasionally not so much as a State. Thus, for an example, Indiana alone is sectionized according to the second principal meridian; the fifth principal meridian governs the survey of Arkansas, Missouri, Iowa, very nearly all of Minnesota, North Dakota, and the east half of South Dakota. (See United States map of land districts.)

SECONDARY LAND DISTRICTS.

ART. 9. Land districts, or surveying districts, are often divided into other land districts. This is done for the sake of convenience in making surveys or for the purpose of designating and recording land in a particular locality.

These districts are always named, and in each one there is a land office.

Arkansas is divided into the following land districts, with the accompanying land office in each:

Little Rock District, land office Little Rock; Dardanelle District, land office Dardanelle; Harrison District, land office Harrison; Camden District, land office Camden.

ART. 10. In analytic geometry all loci, or points of a plane, are established with reference to two lines crossing each other. These are called "axes of reference." On this principle the Government Land Survey proceeds. We can establish any territory or tract of land with reference to two lines intersecting each other; but for the sake of simplicity these "axes of reference" are called "principal meridian" and "base lines."

PRINCIPAL MERIDIAN.

ART. 11. To sectionize these land districts, through the middle, or near it, or in some con-

venient part, a meridian must be established. This is called the "principal meridian."

Meridian, base, guide, and correction lines are established by astronomical observation. Other lines are run with the compass.

BASE LINE.

ART. 12. Near the middle of the meridian and at right angles to it another line must be established. This is called the "base line."

ILLUSTRATIONS.

ART. 13. Suppose we were going to survey and sectionize the following domain: (Fig. 1.)

First, we will suppose its natural divisions to be such as to require it to be divided into three land districts, as in Fig. 2, or as it is opened for settlement, to come in, severally, in these three divisions.

ART. 14. Second, let us establish near the middle of each land district a principal meridian. (Fig. 3.) There is no uniformity of distance between principal meridians, neither is there any between base lines.

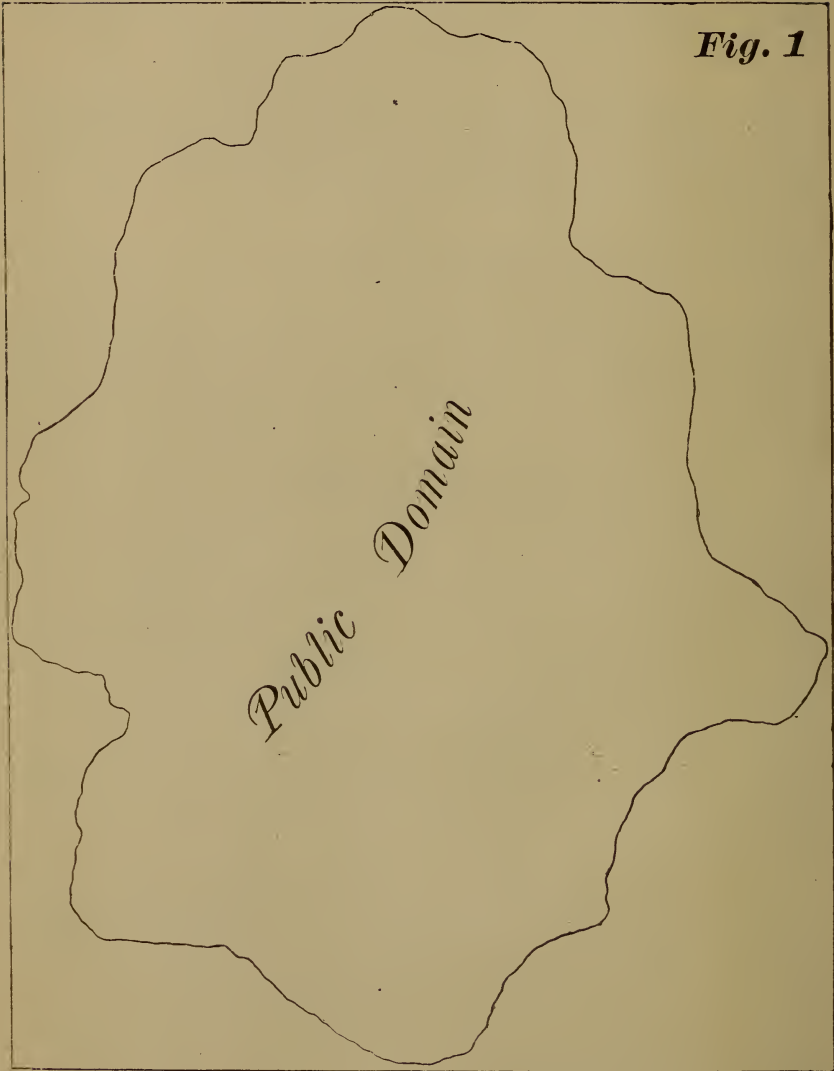
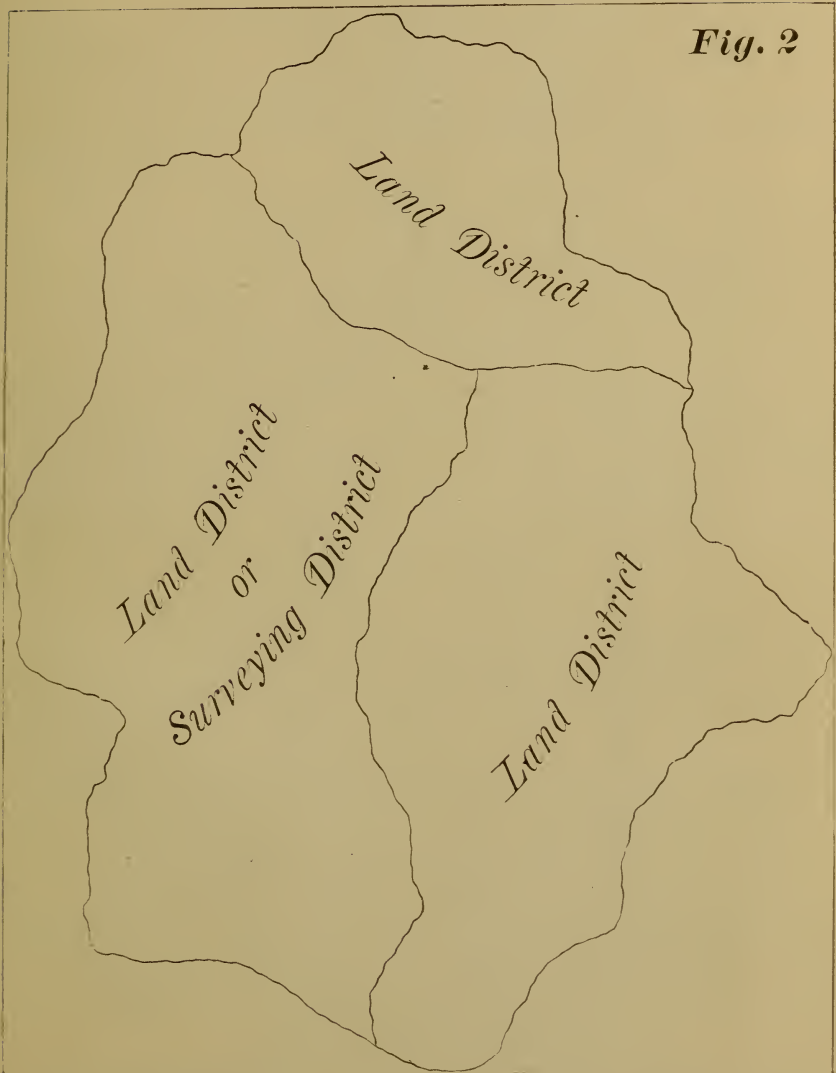


Fig. 2



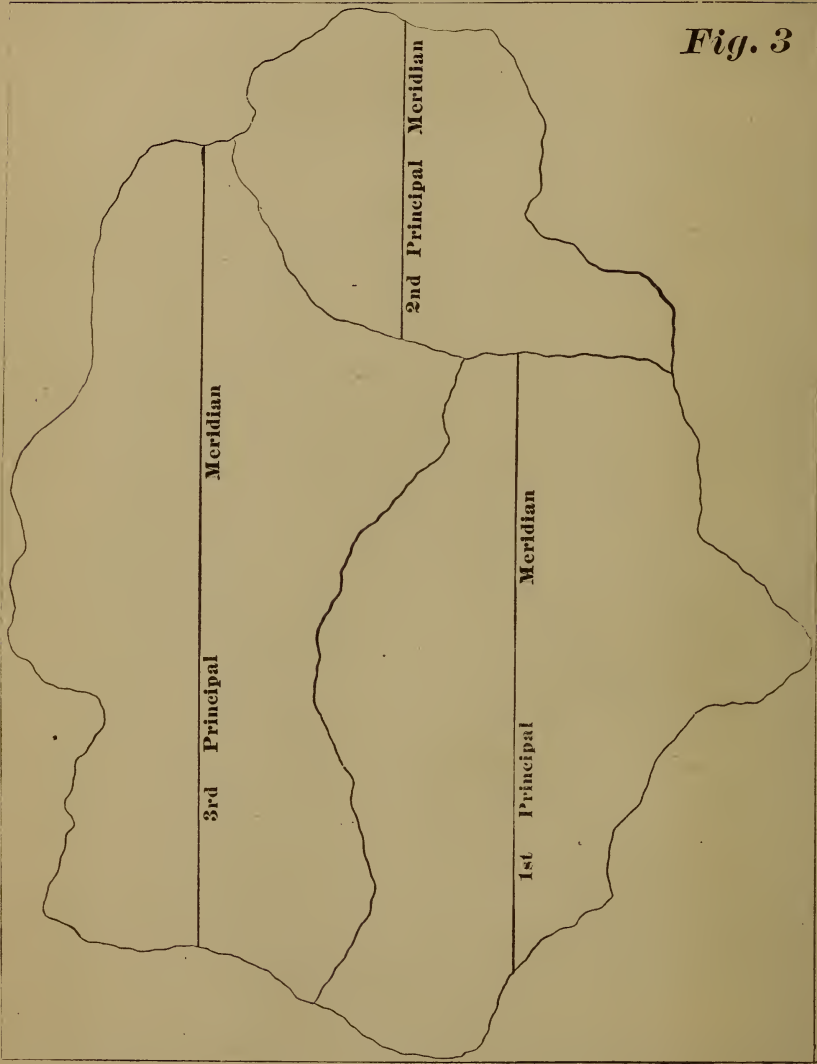


Fig. 3

ART. 15. Now as we have the meridian lines established, let us run our base lines near the center of each meridian and at right angles to them. (Fig. 4.)

ART. 16. Each principal meridian is numbered from east to west in rotation. Often instead of being numbered they are named, as the Michigan, St. Helena, Willamette meridian, etc. The one that governs the sectionizing of Arkansas is called the fifth principal meridian. (See United States map of meridians and land districts.)

RANGE LINES.

ART. 17. Third, let us lay off other meridian lines six miles apart on either side of the principal meridian, as in Fig. 5.

These columns constitute the range. Hence we see that ranges lay along meridian lines and run north and south. These lines are called range lines. The figures, or numbers, along the base line are the range numbers.

TOWNSHIP LINES.

ART. 18. Fourth, as in Fig. 6, we will lay off

Fig. 4

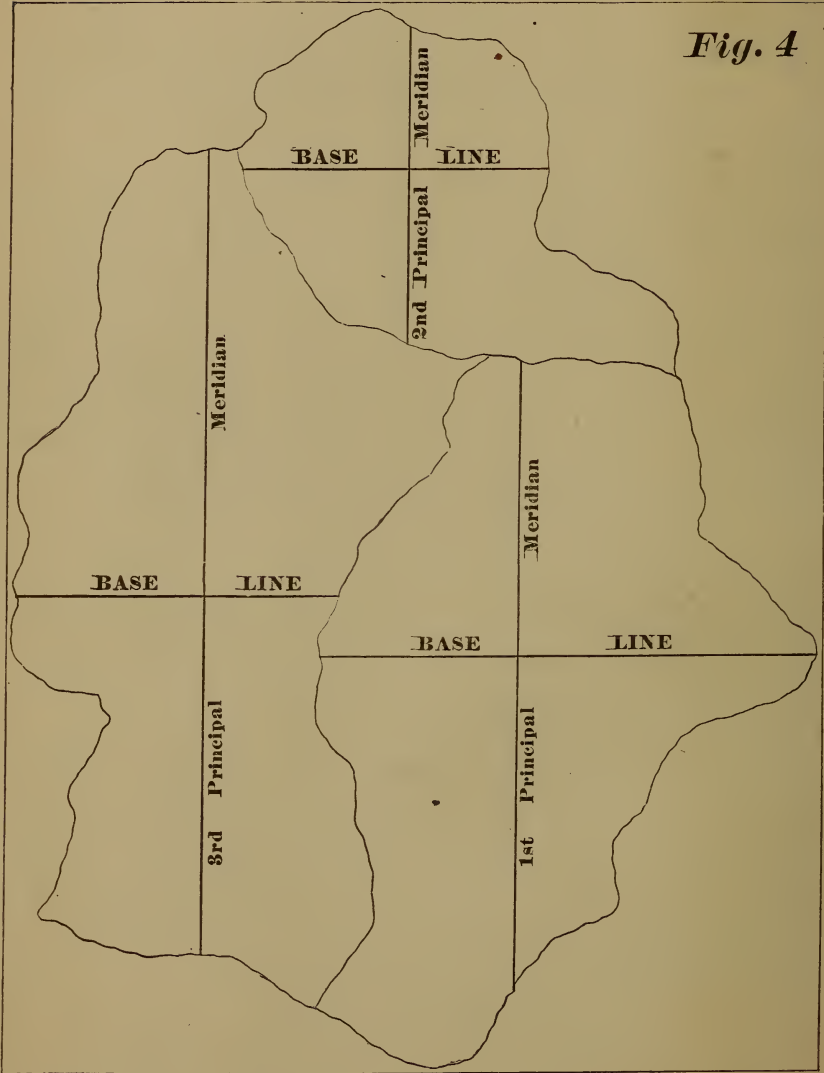
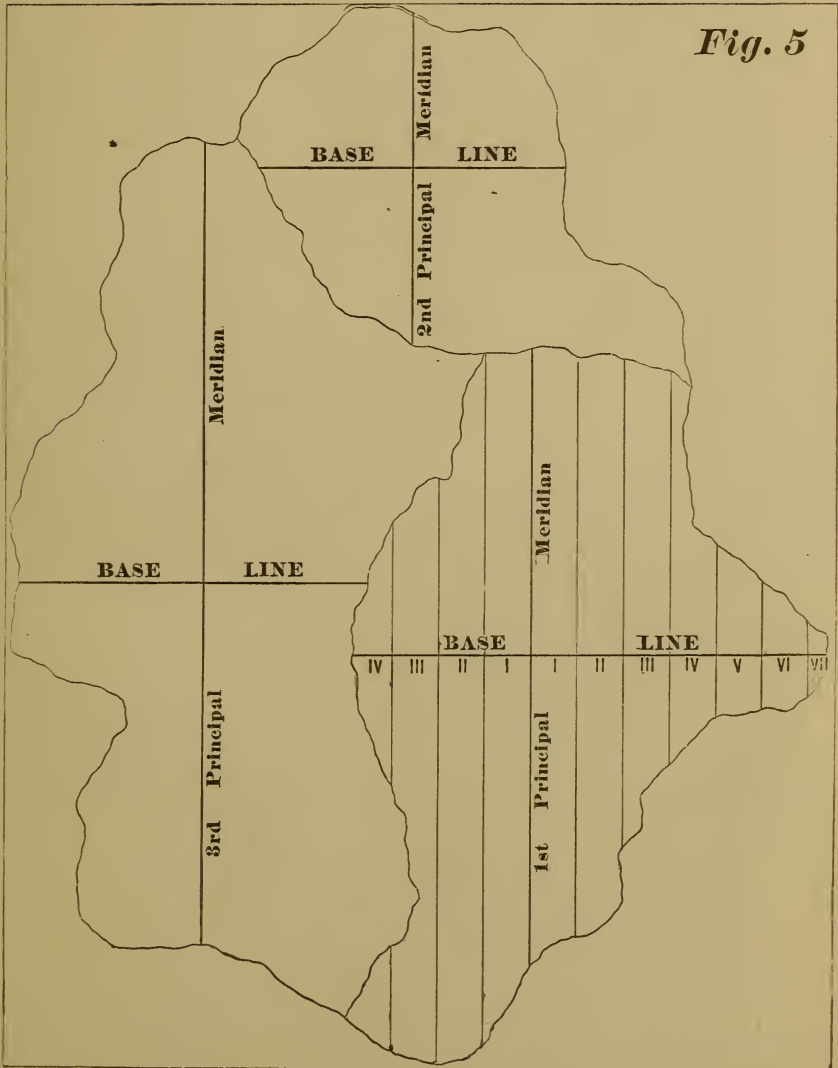


Fig. 5



parallels to the base line, both north and south, six miles apart. These are township lines. The columns between the parallels are township columns, and are numbered along the meridian both north and south from the base line. The numbers along the principal meridian are the township numbers.

ART. 20. Were we to describe Township *a* in Fig. 6, we would say: Township 6 north, Range 3 east; Township *b* would be Township 3 north, Range 3 west; *c* would be Township 8 south, Range 2 west; and *d* would be Township 5 south, Range 1 east, etc. In expressing these townships, write them thus: T. 6 N., R. 3 E.

Examples for practice:

How would you describe the townships in Fig. 6 marked by the letters as follows: *r*, *s*, *t*, *u*, *v*, *w*, *x*, *y*, and *z*?

Answers to the foregoing examples:

<i>r</i>	is	Township	3	S.,	Range	3	E.
<i>s</i>	“	“	6	S.,	“	2	E.
<i>t</i>	“	“	6	S.,	“	2	W.
<i>u</i>	“	“	2	N.,	“	2	W.

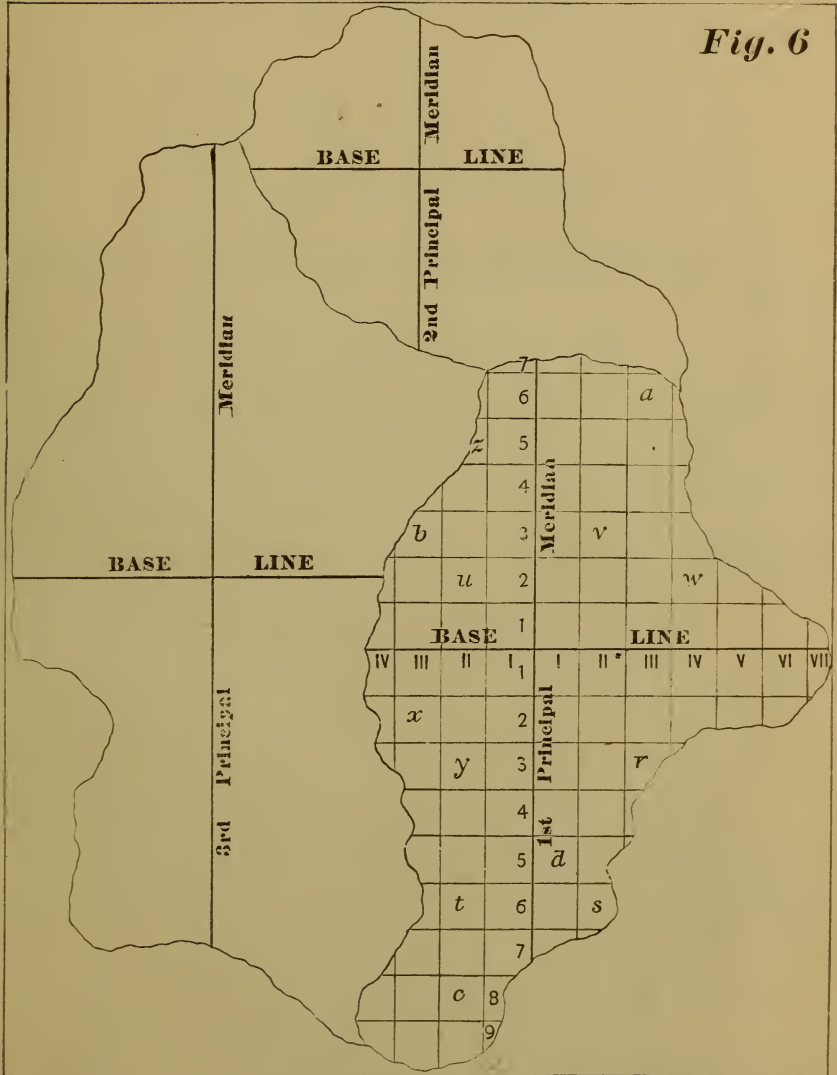


Fig. 6

The other districts are surveyed in like manner.

<i>v</i>	is Township 3 N., Range 2 E.
<i>w</i>	“ “ 2 N., “ 4 E.
<i>x</i>	“ “ 2 S., “ 3 W.
<i>y</i>	“ “ 3 S., “ 2 W.
<i>z</i>	“ “ 5 N., “ 2 W.

Arrange a table as above of all the townships in Fig. 6.

ART. 21. It appears from Fig. 6 that the meridian lines run parallel, but they do not. They continue to approach till they come together at the north pole. Hence corrections must be made in these lines to make up for the loss.

These corrections are made on scientific principles, which will be explained farther on. (See page 64.)

ART. 22. On account of the obliquity of these meridian lines, a township does not contain the supposed amount, 23,040 acres. This gives rise to the expression, “40, 60, or 80 acres, more or less,” and partially to fractional forties.

QUESTIONS.

13. In the solution of this problem what was the first step?
14. What was to be appointed in each land district?
15. What was he to do?
16. What is a land district?
17. How much territory does it comprise?
18. What State has three meridians?
19. What States does the 5th principal meridian govern?
20. How much territory is sectionized according to the 2d principal meridian?
21. What is the second step in the survey?
22. What is the third?
23. What are the two lines just established called?
24. How are meridians numbered?
25. Are they ever named and not numbered?
26. Give the name of the extreme west meridian.
27. What do we call the one that governs Arkansas?
28. What do we do after establishing meridian and base lines?
29. How do we number the columns thus-formed?
30. What are these columns?
31. The numbers along the base line are what?

38 *A Theoretical and Practical Treatise*

32. What is the next step?
33. The columns thus formed are what?
34. How are they numbered?
35. The numbers along the meridian are what?
36. What are the requisites in describing any township?
37. Do the meridian lines that we have just established run parallel?
38. What must be done to overcome this difficulty?
39. Do townships contain the exact amount supposed?
40. What expression has arisen from that cause?

CHAPTER III.

THE TOWNSHIP.

ART. 23. You have now learned that a township is a mathematical division of the county six miles square. This is called a “congressional township,” and is the one with which we are to deal in this work.

In order to prevent confusion of mind it might be well to explain another kind of township.

THE TOWNSHIP POLITIC.

ART. 24. The township politic must not be confounded with the congressional township, as the former is a political and the latter a mathematical division. Political townships are named, as, for example, Osage, Mount Vernon, Sulphur Springs, etc., and are of no definite size and have no relation to the congressional township.

States, congressional districts, counties, and townships, as last mentioned, are political divisions. Land districts, townships, and sections are mathematical divisions.

CONGRESSIONAL TOWNSHIP.

ART. 26. Let us now take up the congressional township and explain as surveyed.

Fig. 7



ENLARGEMENT OF TOWNSHIP A, FIG. 6.

Through each township other meridians are run one mile apart, dividing it into six columns,

as in Fig. 7. These columns are not numbered as the townships and ranges, but east and west lines are run one mile apart parallel with the base line, as in Fig. 8. In the real survey of the townships, these lines are established at the

Fig. 8

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

ENLARGEMENT OF TOWNSHIP A, FIG. 6.

same time that the north and south lines are run.

We see now that each township is divided into thirty-six sections; each section is one mile square,

and contains 640 acres, more or less, as we have seen and will fully understand farther on.

HOW SECTIONS ARE NUMBERED.

ART. 27. Beginning with the section in the northeast corner of the township, number, as in Fig. 8, back and forth till all the sections are numbered, Section 36 always being in southeast corner.

Both the lines running north and south, east and west through the township are called section lines.

HOW SECTIONS ARE DESCRIBED.

ART. 28. Were we to describe Section 17 in the above township, we would say Section 17, Township 6 north, Range 3 east. If it were Township *b*, we would describe it as being Section 17, Township 3 north, Range 3 west. Township *c* would be Section 17, Township 8 south, Range 2 west. Township *d* would be Section 17, Township 5 south, Range 1 east, etc. Expressing this in writing, it should be, "Sec. 17, T. 6 N., R. 3 E.," etc.

We give below a few practical examples to be written by the pupil.

How would you describe Section 5 in Township *r*, Fig. 6, both verbal and written? How Section 18 in *s*? Section 14 in *t*? Section 25 in *u*? Section 36 in *v*? Section 1 in *w*? Section 12 in *x*? Section 17 in *y*? Section 19 in *z*?

ANSWERS.

Sec. 5, T. 3 S., R. 3 E.

Sec. 18, T. 6 S., R. 2 E.

Sec. 14, T. 6 S., R. 2 W.

Sec. 25, T. 2 N., R. 2 W.

Sec. 36, T. 3 N., R. 2 E.

Sec. 1, T. 2 N., R. 4 E.

Sec. 12, T. 2 S., R. 3 W.

Sec. 17, T. 3 S., R. 2 W.

Sec. 19, T. 5 N., R. 2 W.

SECTION.

TABLE OF MEASUREMENT.

6 miles square = 1 township.

1 township = 36 sections.

36 sections = 23,040 acres.

1 section = 640 acres.*

$\frac{1}{2}$ section = 320 acres.*

$\frac{1}{4}$ section = 160 acres.*

$\frac{1}{8}$ section = 80 acres.*

$\frac{1}{16}$ section = 40 acres.*

66 feet = 1 chain.

80 chains = 1 mile.

80 chains square = 1 section.

40 chains square = $\frac{1}{4}$ section.

10 chains square = $\frac{1}{16}$ section.

10 square chains = 1 acre.

ART. 29. We have now enlarged a township in

* Sections may be divided into much smaller parts, but these are the "Legal Divisions." (See pages 20, 21, and 22.)

all of its divisions ; let us next enlarge a section. For an example, let us take Section 19 in the above township, Fig. 8, so that when we get our section divided we may be able to describe any part of it.

Sections may be divided into half-sections, fourth-sections, sixteenths, and sixty-fourths, etc., as shown in the following diagrams:

Fig. 9

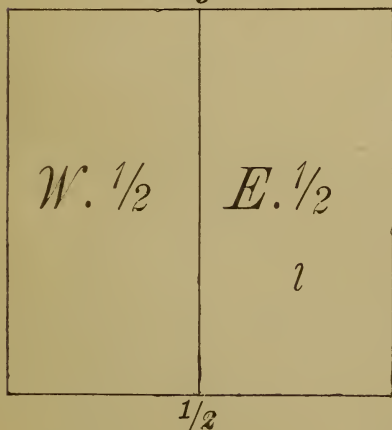
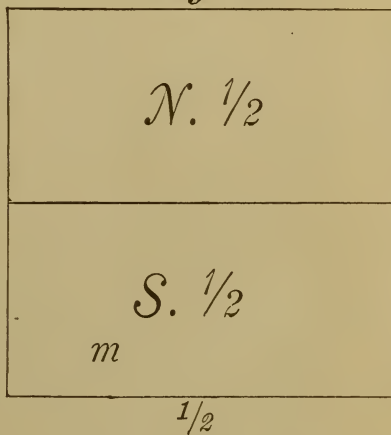


Fig. 10



We must still bear in mind to what township this section belongs. It is Township 6 N., Range 3 E.

PRACTICAL EXAMPLES.

How would you describe the half-section marked

7, Fig. 9? Ans. E. $\frac{1}{2}$ of Sec. 19, T. 6 N., R. 3 E.
 How *m*, in Fig. 10? Ans. S $\frac{1}{2}$ of Sec. 19, T. 6 N.,
 R. 3 E. How would you describe *n* in Fig. 11?
 Ans. N. W. $\frac{1}{4}$ of Sec. 19, T. 6 N., R. 3 E. How
 would you describe *p*, as divided in Fig. 12?

Fig. 11

<i>N. W.</i> $\frac{1}{4}$ <i>n</i>	<i>N. E.</i> $\frac{1}{4}$
<i>S. W.</i> $\frac{1}{4}$ <i>o</i>	<i>S. E.</i> $\frac{1}{4}$
$\frac{1}{4}$	

Fig. 12

<i>N.</i> $\frac{1}{2}$ of <i>N. W.</i> $\frac{1}{4}$		<i>g</i>		
<i>h</i>			<i>i</i>	
<i>p</i>		<i>e</i>		
<i>S. W.</i> of <i>S. W.</i> $\frac{1}{4}$	<i>k</i>	<i>c</i>		<i>d</i>
$\frac{1}{16}$		$\frac{1}{64}$		

Ans. N. W. $\frac{1}{4}$ * of S. W. $\frac{1}{4}$ of Sec. 19, T. 6 N.,
 R. 3 E. How *g*? Ans. N. W. $\frac{1}{4}$ of N. E. $\frac{1}{4}$ of
 Sec. 19, etc. How *i*? Ans. S. E. $\frac{1}{4}$ of N. E. $\frac{1}{4}$ of
 Sec. 19, T. 6 N., R. 3 E. How *k*? Ans. S. E. $\frac{1}{4}$
 of S. W. $\frac{1}{4}$ of Sec. 19, T. 6 N., R. 3 E.

How would you describe *e* in Fig. 12? Ans.

* N. W. of S. W. $\frac{1}{4}$; the N. W. $\frac{1}{4}$ of S. W. $\frac{1}{4}$, and N. W. $\frac{1}{4}$
 of S. W. $\frac{1}{4}$, are, in meaning, the same.

N. W. $\frac{1}{4}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 19, T. 6 N., R. 3 E. How *c*, Fig. 12? Ans. N. W. $\frac{1}{4}$ of S. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 19, etc. How *d* in the same figure? Ans. N. E. of S. E. of S. E. $\frac{1}{4}$ of Sec. 19. etc.

How many acres in each of the above examples?

Interpret the following:

N. E. $\frac{1}{4}$ of S. W. $\frac{1}{4}$ of Sec. 10, T. 18 N., R. 4 E.;
 N. W. $\frac{1}{4}$ of N. E. $\frac{1}{4}$ of S. W. $\frac{1}{4}$ of Sec. 5, T. 41 S., R. 25 E.;
 E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 36, T. 1 S., R. 89 W.;
 S. $\frac{1}{2}$ of N. E. $\frac{1}{4}$ of S. W. $\frac{1}{4}$ of Sec. 31, T. 20 N., R. 1 E.

How many acres in each of these examples?

Mr. N. L. Bradshaw owns N. E. $\frac{1}{4}$ of Sec. 22, T. 1 S., R. 2 W. His house is on the northeast corner of the farm. He bought the W. $\frac{1}{2}$ of S. W. $\frac{1}{4}$ of Sec. 36, T. 2 N., R. 1 E. He left his home to go to the latter farm, and his journey was as follows: He went north to the southeast corner of Section 3, thence east to northeast corner of Section 12, thence north to southwest corner of Section 31, T. 1 N., R. 1 W.; thence east to southwest corner of Section 34, T. 1 N.,

R. 1 W.; thence north to southwest corner of Section 15, T. 1 N., R. 1 W.; thence east to southeast corner of Section 13, T. 1 N., R. 1 W.; thence north to northeast corner of Section 13, T. 1 N., R. 1 W.; thence east to southwest corner of Section 11, T. 1 N., R. 1 E.; thence directly to northeast corner of the same section; thence north to southwest corner of said farm. But when he started back, he went west from the farm to northwest corner of Section 3, T. 1 N., R. 1 E.; thence south to southwest corner of Section 27, T. 1 N., R. 1 E.; thence west to northwest corner of Section 34, T. 1 N., R. 1 W.; thence south to southeast corner of Section 16, T. 1 S., R. 1 W.; thence west to place of starting.

Plat the above townships, farms, and roads. Where do the roads intersect? How far did he travel the same road, and where? How much land in each farm? How far did he travel on his journey home? Could he have come a nearer way and yet followed section lines?

LOTS.

ART. 30. The act of Congress approved May 24, 1824, provides, "That whenever, in the opinion of the President of the United States, a departure from the ordinary mode of surveying land on any river, lake, bayou, or watercourse would promote the public interest, he may direct the surveyor-general in whose district such land is situated, and where the change is intended to be made, under such rules and regulations as the President may prescribe, to cause the lands thus situated to be surveyed in tracts of two acres in width, fronting on any river, lake, bayou, or watercourse, and running back the depth of forty acres.

The act of April 5, 1832, gave to the Secretary of the Treasury power to divide residuary land according to rules and regulations prescribed by himself. Hence we have divisions termed lots.

A lot is a subdivision of a section, usually of irregular form.

Lots are described as being Lots Nos. 1, 2, 3, 4, etc., of a particular section.

QUESTIONS.

41. What is a township?
42. How are townships divided?
43. Into how many parts?
44. Are they numbered as townships and ranges?
45. How much land does a section contain?
46. How are they numbered?
47. Where is Section 36 always located?
48. What are the lines through a township called?
49. What are the requisites in describing a section?
50. How may a section be divided?
51. What are the legal divisions of a section?

MAP QUESTIONS ON ARKANSAS.

1. According to what meridian is Arkansas sectionized?
2. Where does this meridian begin and terminate? *
3. Locate the base line.*
4. How extensive is this land district in which Arkansas is situated? *
5. In what part of it is Arkansas?
6. In what township is your county seat?
7. You are now in what township?
8. Do you or your parents own land? If so, describe it.
9. Under which method does it come?

*The fifth principal meridian starts from the mouth of the Arkansas River, and, with a common base line running due west from the mouth of the Saint Francis River, in Arkansas, governs the surveys in Arkansas, Missouri, Iowa, Minnesota west of the Mississippi, and the third guide meridian north of the river, North Dakota and South Dakota east of the Missouri River. This meridian is coincident with $90^{\circ} 58'$ longitude west from Greenwich.

CHAPTER IV.

SECOND METHOD OF DESCRIBING LAND.

ART. 31. We use the rectangular method of describing or locating land when we have north and south, east and west lines by which we are to be governed; but if the boundary-lines of a piece of land run obliquely as in Figs. 13 and 14, we must resort to some other method.

We will describe Fig. 13 as Sec. 20, T. 1 N., R. 4 W., and Fig. 14 as Sec. 5, T. 8 S., R. 3 E.

In describing land when bounded as in Figs. 13 and 14, we must be governed by "bearing" and the length of the sides.

ART. 32. We describe and locate the tract of land in Fig. 13 as follows: Beginning at S. W. corner of S. E. $\frac{1}{4}$ of Sec. 20, T. 1 N., R. 4 W.;

thence N. 45° E. r chains; thence S. 50° E. s chains; thence S. to S. E. corner of the above-named section; thence W. to beginning point;

Fig. 13

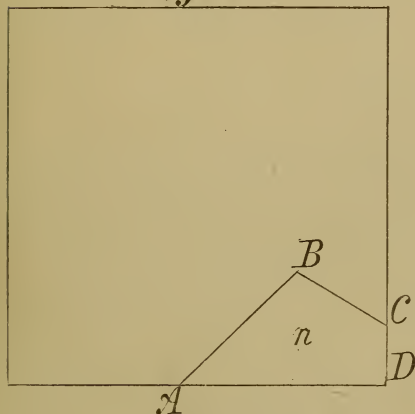
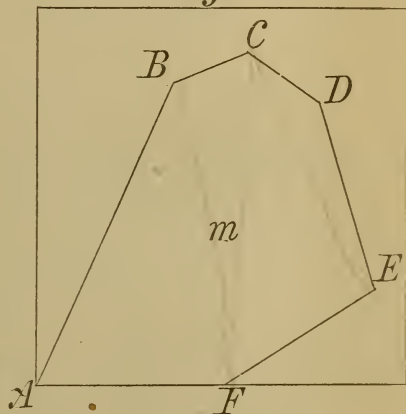


Fig. 14



A B in Fig. 13 = r chains; B C = s chains; C D = i chains.

B A in Fig. 14 = m chains; B C = n chains; C D = l chains; D E = h chains; E F = k chains.

containing $74\frac{1}{2}$ acres. We describe m in the same way, thus: Beginning at S. W. corner of Sec. 5, T. 8 S., R. 3 E.; thence N. 20° E. m chains; thence N. 70° E. n chains; thence S. 40° E. l chains; thence S. 20° E. h chains; thence S. 60° W. k chains to S. W. corner of S. E. $\frac{1}{4}$ of the above-named section; thence W. to beginning point; containing 236.85 acres.

Draw a plat of the following examples according to bearings and chains:

EXAMPLE NO. 1.

BEARINGS.	CHAINS.
1 S. 10° W.	19.
2 N. 70° W.	15.25
3 N. 37° 45' E.	19.
4 S. 78° E.	6.25

EXAMPLE NO. 2.

BEARINGS.	CHAINS.
1 N. 20° E.	7½
2 E.	5½
3 S. 10° E.	10.
4 S. 50° W.	6¾
5 N. 30° W.	8.20

Write a description of the land in the above examples, beginning at the corner of any section you may desire and in any township.

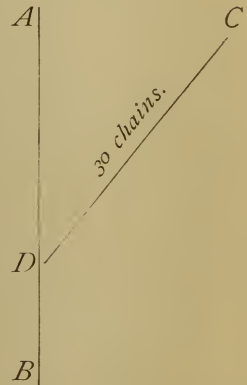
ART. 33. In describing land in a deed some conspicuous and permanent object near the corners, such as trees, should be mentioned, and to

describe it definitely and accurately, often roads, streams of water, the owners of adjoining land, and many other things are mentioned. The description must be such as to establish permanently and definitely the premises.

BEARING.

ART. 34. The bearing of a line is the angle it makes with the magnetic meridian.

ART. 35. The magnetic meridian $A B$ is a true north and south line. Suppose $A B$ to be a magnetic meridian, then the angle that $C D$ makes with it is the bearing. If $C D$ were one side of a field, and we were to describe it, we would say N. 25° E. 30 chains.



All lines not parallel with $A B$ will make some angle with it. Hence we may locate all the sides of a field with reference to the magnetic meridian by expressing it in bearing and length of sides. (See some work on surveying in general.)

TOWNSHIP.

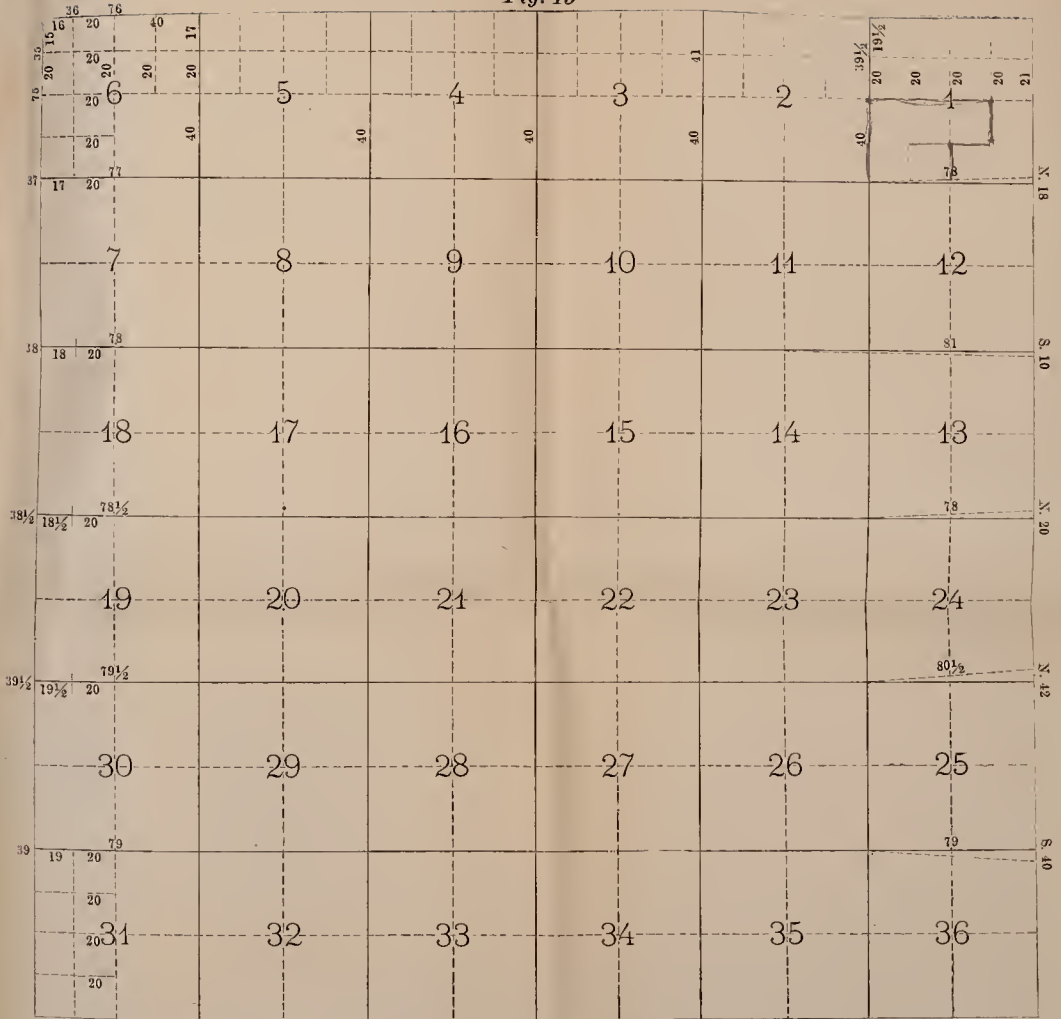
ART. 36. It might be well to notice here something more with reference to a township. It is not always necessary in describing a township to say T. 6 N., R. 3 E. Unless two townships of the same number fall within the same State, it is unnecessary to describe as above. If there were only one T. 20, R. 30 in the State of Arkansas (and there is just the one) it would not be necessary to add anything more to locate it properly. When we mention the State in which it is situated, if there be no other township of the same number, we locate it definitely, and instead of saying T. 20 N., R. 30 W., we describe it as being T. 20, R. 30, and mention the State.

We know that it is quite often the case that two or more townships fall within one State, because in each "land district" there are four townships of the same number, and in such cases it is necessary to tell whether they are north or south of base line and east or west of principal meridian.

ART. 37. We will further notice by reference

The image shows a very faint grid or table structure on aged paper. The grid consists of approximately 4 columns and 4 rows of cells. The lines are extremely light and difficult to discern. There are some faint markings within the cells, but they are illegible. The overall appearance is that of a blank or nearly blank ledger page.

Fig. 15



80 Chains = 1 Mile. 20 Chains square = 40 Acres. 10 Chains in length and 1 in width = 1 Acre. 1 Chain = 66 Feet.

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

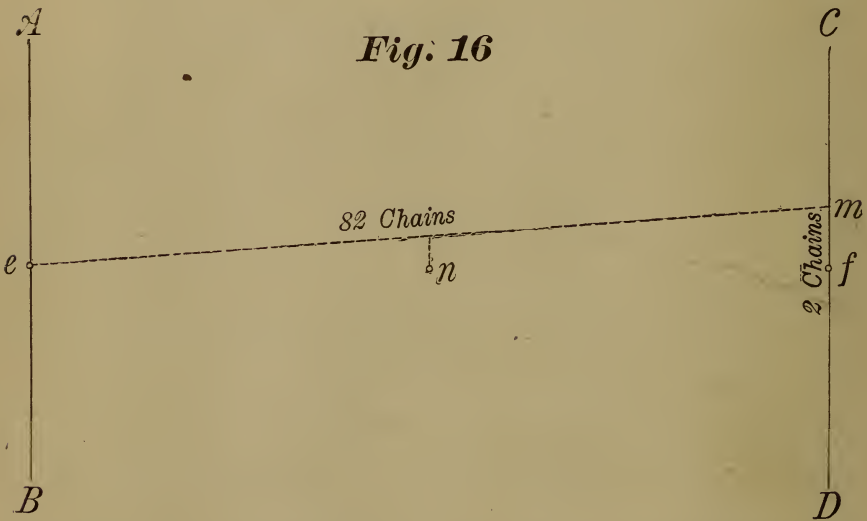
to a township (see Fig. 8) that Sections 15, 16, 21, and 22 are the middle sections. Of this group Section 16 is often set apart for school purposes, especially in the Western States. Hence it is called school section. Sometimes Section 36 is used for the same purpose.

FRACTIONAL FORTIES.

ART. 38. Each township is surveyed according to the mile-stones along the south and east lines of the township to be surveyed, and by so surveying all fractional forties are on the west and north sides of the township.

Thus, let us survey the above township, Fig. 15. We must always begin to survey a township by going to the southwest corner of Section 36. Begin at the mile-stone as established by the Government. Run north one mile (eighty chains), and establish a permanent corner (a half-mile-stone should have been established between these corners). Next run a temporary line east to range line, measuring the exact distance to it. We will suppose the distance to be seventy-nine chains, lacking one of being a full mile.

We now measure the distance from the point where the temporary line intersects the range line to the established mile-stone on the range line, supposing it to be forty links, and the intersection to be south of the established corner. We then go back one-half the length of tempo-



rary line (seventy-nine chains) and place the corner just twenty links due north of temporary line. There will be the quarter-section stone.

To understand fully the operation we might illustrate by Fig. 16.

Take AB and CD as two section lines, and e

and f as two established corners. We desire now to place another corner directly between them.

We will run a temporary line from e east as in Fig. 16, till we intersect the other section line at m , measuring the exact length of same, and find it to be eighty-two chains. We measure the distance from m to f and find that to be two chains. Now, if we will run back on the temporary line forty-one chains, and thence due south one chain, and establish the corner n , it will be directly between e and f .

This shows you how the corner may be established, but varies a little from the method used by surveyors. A discussion of that method is not within the sphere of this volume.

We survey the next section above 36, which is 25, in the same manner, and perhaps our temporary line will run out north of the milestone on the range line instead of south. We repeat the operation as in Section 36, except move the corner south from temporary line.

We continue the same operation till we come

to the southwest corner of Section 1. There we run north one-half mile (forty chains) and establish a corner; thence north to township line, and find it to be short one-half chain. It ought to have been forty chains, but was only $39\frac{1}{2}$. To have had a full section it should have run up as the dotted line represents in Fig. 15, Section 1. We see now that the north half of Section 1 lacks the amount contained in the small dotted triangle of being a full half-section. When we survey the north half of Section 1 we begin at the half-mile-stone and run north full twenty chains, leaving only $19\frac{1}{2}$ chains to township line, as is shown in Fig. 15. That leaves all the forties along the township line fractional. All the forties along the north side of township are surveyed in this manner. The forties along the west side of the township are surveyed the same way, only we run full twenty chains west instead of north, as you will see by Fig. 15. Now, to survey the next column of sections we must go back to the southwest corner of Section 35, and continue as before; and perhaps when we get to Section 2

we will find the north half to be too large by one chain, or some other distance, as is represented in Section 2, Fig. 15. In this instance the north forties contain more than the supposed amount. We pull up and go back to southwest corner of Section 33, etc., till we get to the last column of section.

Then we begin at the southeast corner of Section 31, and run north one mile, thence west one-half mile (forty chains) and establish a corner, thence west to range line. We find it to be short one chain. So, when the forties are surveyed as described above, they are all found to be fractional. We continue the same operation till we get to Section 6. There we run north forty chains and establish a corner, thence north twenty chains and establish a corner, thence to township line, and find that to be only fifteen chains. We begin at the northeast corner of Section 6 and repeat as above, and find the last run to be sixteen chains. So the northwest quarter of the northwest quarter of Section 6 is fractional on two sides, and the only forty that ever happens thus in any township.

ART. 39. All surveys made prior to about the year 1856 have a double set of corners along the township and range lines, but since that all surveys in one township are made to correspond with the mile-stones of the other. By so doing there are only one set of corners along these lines.

REMARK: At the close of illustration Fig. 17 explain the difference between a tract of land that contains "more or less" and a "fractional forty."

QUESTIONS.

51. Is there another method used in describing land?
52. To what does the foregoing method apply?
53. To what kind of land does this method apply?
54. How do we describe land when bounded obliquely?
55. Describe the land in Figures 13, 14.
56. What are the requisites in describing land by this method?
57. In describing land in a deed what must be done?

58. Such as what?
59. What is the bearing of a line?
60. What is the magnetic meridian?
61. Is it always necessary in describing a township to tell whether N. or S., E. or W.?
62. When does it become necessary to describe thus?
63. Are there likely to be townships of the same number in each land district?
64. What are the numbers of the four middle sections?
65. For what purpose is Section 16 quite often used?
66. What is it sometimes called?
67. Where are fractional forties found?
68. Explain why.
69. What division is fractional on two sides?
70. Why?
71. Explain how quarter section corners are established.
72. Do the surveys in one township correspond with those of the adjacent one?
73. When was this mode of surveying begun?

CHAPTER V.

CORRECTION AND GUIDE
LINES.

ART. 40. Let us recapitulate here a little and show more clearly why townships have more or less land, and the use, or function, of correction and guide lines.

We know that all the meridian lines gradually approach each other till they come together at the north pole. If no corrections were made in these lines, a township situated half-way from the base line to the north pole would be just half as wide as it should be; that is, it would be just three miles wide. But to make up for this loss, at the distance of twenty-four miles there must be established standard parallels, or correction lines. These are established throughout the

entire domain, and are numbered in rotation both north and south from the base line, as in Fig. 17.

In surveying we must begin with full six miles on each standard parallel or correction line, and by so doing we keep all the townships very nearly equal. However, there will be a slight error; but the oftener we make a correction the less will be the error. The farther we get from the poles of the earth the less will be the error also, for one person may start six miles from the principal meridian on the equator, and will lose a small quantity on each township till he meets the meridian at the north pole; another person may start half-way from the equator to the north pole, six miles from the principal meridian, and must lose twice as much on each township in order to meet the meridian at the north pole also.

GUIDE LINES.

ART. 41. There are in addition to the lines already mentioned "guide lines" or "guide meridians." These are lines running north and south, and having about the same function as

standard or correction lines. They are established twenty-four miles apart, and are numbered both east and west from principal meridian. (Fig. 17.) Many of them are named instead of being numbered, as New Mexico Guide Meridian, Ruby Valley Guide Meridian, etc.

ART. 42. In the actual work of the Government Land Survey it is contemplated that the base principal meridian, standard parallels, correction lines, and guide meridians shall first be extended over the territory to be surveyed, and that afterward township and section lines shall be run, where needed, within these tracts of twenty-four miles square, formed by the extension of these principal lines; and each surveyor-general will therefore cause said principal lines to be extended as rapidly as practicable, as shown in the following diagram.*

Each division in Fig. 17 is twenty-four miles

* In most of the surveys made up to the present time, the correction lines have been established twenty-four miles apart north of base line, and thirty miles apart south of base line, and most of the guide meridians have been established forty-eight miles apart both east and west of principal meridian.

square, and after having extended the standard parallels, or correction lines, and guide meridians throughout the entire domain to be surveyed, we may choose any locality, where it is necessary that sectionizing be done, and proceed at once with the work.

Fig. 17

West	West	4th	Correction	MERIDIAN	Line		North
		3rd			Line		
		West	Correction	MERIDIAN	East		East
					Line	North	
Meridian	Meridian	1st	Correction	MERIDIAN	Meridian		Meridian
					Line	North	
Guide	Guide	BASE	Correction	MERIDIAN	Guide		Guide
					Line	North	
3rd	2nd	1st	Correction	PRINCIPAL	1st		3rd
					Line	South	
	2nd		Correction	PRINCIPAL	Line	South	

TABLE SHOWING THE LOCATION OF THE MERIDIAN AND BASE LINES IN THE UNITED STATES.

Names of Meridian or Base Lines.	WHERE LOCATED.			
	No. of Miles.	Direction.	Town.	State.
First Prin. Mer. -----	*0	W	State line of -----	Ohio
Base Line -----	3	S	of Ottawa -----	"
Mich. Prin. Mer. -----	2	E	" Jackson -----	Mich.
Base Line -----	12	N	" " -----	"
Second Prin. Mer. -----	2	E	" Frankfort -----	Ind.
Base Line -----	2	S	" Petersburg -----	"
Third Prin. Mer. -----	$\frac{1}{2}$	E	" Mound City -----	Ill.
Base Line -----	2	S	" Belleville -----	"
Fourth Prin. Mer. -----	$1\frac{1}{2}$	E	" Galena -----	"
Base Line -----	$2\frac{1}{2}$	N	" Mt. Sterling -----	"
Fifth Prin. Mer. -----	12	W	" Dubuque -----	Iowa
Base Line -----	6	S	" Little Rock -----	Ark.
La. Mer. -----	$1\frac{1}{2}$	E	" Alexandria -----	La.
Base Line -----	5	N	" Evergreen -----	"
St. Helena Mer. -----	*0		" Baton Rouge -----	"
Base Line is the State line	e N. of		Baton Rouge, La.	
Choctaw Mer. -----	3	W	of Jackson -----	Miss.
Base Line -----	30	S	" " -----	"
N. Miss. Prin. Mer. -----	4	W	" Ashland -----	"
Base Line -----		N	" line of Miss. -----	"
St. Stephens Mer. -----	2	E	" Mobile -----	Ala.
Base Line -----		S	State line, 24 m N -----	Mobile.
Ga. Mer. -----	0		of Tallahassee -----	Ga.
Base Line -----	0		" " -----	"
Huntsville Mer. -----	1	E	" Huntsville -----	Ala.
Base Line -----		N	" State line of -----	"
Indian Mer. -----	10	E	" Guthrie -----	Okla.
Base Line -----	96	S	" " -----	"
Public Land Mer. -----		W	" Line of Public -----	Lands.
Base Line -----		S	" " " -----	"
Sixth Prin. Mer. -----	3	W	" Wichita -----	Kan.
Base Line -----		N	" State line of -----	"
Prin. Mer. of N. M. -----	6	W	" Las Cruces -----	N. M.

TABLE SHOWING THE LOCATION OF THE MERIDIAN AND BASE LINES IN THE UNITED STATES.

Names of Meridian or Base Lines.	WHERE LOCATED.			
	No. of Miles.	Direction.	Town.	State.
Base Line.....	1	N	of San Aracia	N. M.
Gila and Salt River Mer.	9	E	.. Prescott.....	Ariz.
Base Line.....	5½	S	.. Phœnix .....	..
San Bernardino				
Prin. Mer.	12	E	.. San Diego.....	Cal.
Base Line.....	4	N	.. Los Angeles .....	..
Mount Diablo Mer.	1	W	.. San Jose .....	..
Base Line.....	6	S	.. Stockton .....	..
Willamette Mer.....	3	W	.. Portland	Ore.
Base Line.....	*0		.. ..	..
Boise City Mer.	11	W	.. Boise City.....	Idaho.
Base Line.....	11	S	.. Hailey .....	..
Mont. Prin. Mer.	11	E	.. Helena	Mont.
Base Line.....	7	N	.. Bozeman .....	..
Black Hills Mer.....	1½	E	.. Rapid City	S. D.
Black Hills Base Line	6½	S	.. ..	..
Salt Lake Mer.....	0		.. Salt Lake City	Utah.
Salt Lake Base Line	0		.. ..	..

* 0 Means they pass directly through the place named.

The above table is not definite, as there are no established points within the above towns from which we may establish the lines, but they are given as approximate as possible with reference to the nearest town or city.

In the study of this table you are referred to the map of the United States of land districts, principal meridians, base lines, etc.

UNSURVEYED STATES.

You will further notice in the study of the map of meridians, base lines, and land districts that the following States are not surveyed according to the method of surveying: Maine, New Hampshire, Vermont, New York, Massachusetts, Connecticut, Rhode Island, Pennsylvania, New Jersey, Delaware, Maryland, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, and Texas.

QUESTIONS.

74. Where do meridian lines come together?
75. How do we make up for this loss?
76. Is there any difference between a standard parallel and a correction line?
77. What other line have we?
78. How far apart are the guide lines, correction lines, and the standard parallels?
79. How are they numbered?
80. Are they ever named?
81. Are standard parallels ever corrected?
82. Are the other parallels?

MISCELLANEOUS EXERCISES.

1. Interpret: T. 4 S., R. 6 E.; T. 5 N., R. 2 W.; Section 8, T. 6, R. 4; Section 25, T. 22 N., R. 15 east.

2. Plat E. $\frac{1}{4}$ of Section 25, T. 3, R. 2 in its possible locations.

3. Plat and interpret: N. E. of the N. W. $\frac{1}{4}$ of Section 36, T. 2, R. 3 west.

4. Beginning at the S. W. corner of Section 1, thence N. 40 chains, thence E. 60 chains, thence S. 20 chains, thence W. 20 chains, thence S. 20 chains, thence W. 40 chains. How many acres?

Answer, 200 acres.

5. A certain farmer owns a tract of land, the N. E., N. W., S. W., and the S. E. corners of which are at the following places respectively: The S. W. corner of the N. E. $\frac{1}{4}$ of the N. E. $\frac{1}{4}$ of Section 10; the S. E. corner of the N. W. $\frac{1}{4}$ of the N. W. $\frac{1}{4}$ of Section 9; the N. E. corner of the S. W. $\frac{1}{4}$ of the S. W. $\frac{1}{4}$ of Section 16; the N. W. corner of the S. E. $\frac{1}{4}$ of the S. E. $\frac{1}{4}$ of Section 15. What is the area?

Answer, 1,440 acres.

6. The above farmer made his will as follows: He gave to his wife all the land in Section 10; all the land situated in the west half of Section 9, to his elder son; the S. E. $\frac{1}{4}$ of Section 9 to the younger son; all the land situated in the N. $\frac{1}{2}$ of Section 16 to the elder daughter; and the remaining part to the younger daughter. What part did each get?

Answer: Wife 360, elder son 120, younger son 160, elder daughter 240, and younger daughter 560.

7. B owns a square tract of land containing 1,000 acres. The N. E. corner of this tract corners with the S. W. corner of the N. E. $\frac{1}{4}$ of Section 24; the N. W. corner of this tract corners with the S. W. corner of the S. E. $\frac{1}{4}$ of the N. W. $\frac{1}{4}$ of Section 23. Locate the other corners.

Remark: Ten acres square is $\frac{1}{8}$ of a mile each way, hence $1,000 \div 10 = 100$ tracts of 10 acres each. Extracting the square root, or arranging 100 tracts in a square, gives 10 tracts each way, and $\frac{1}{8} \times 10 = \frac{10}{8} = \frac{5}{4} = 1\frac{1}{4}$ miles. One and one-fourth miles square = 1,000 acres.

8. C owns a tract of land containing 1,960 acres. The N. E. corner is at the S. E. corner of the N. E. $\frac{1}{4}$ of Section 10; the N. W. corner is at the S. W. corner of the S. E. $\frac{1}{4}$ of the N. W. $\frac{1}{4}$ of Section 9. Locate the other corners.

9. D owns a farm containing 160 acres. The N. E. corner of his farm is the same as the S. W. corner of C's farm. Locate and describe the other corners.

10. There are three farms, each of which is a square. The first contains 1,000 acres, the third 160 acres. The second and third extend along the north side of the first just from one corner to the other. What is the area of the second?

Answer, 360 acres.

11. There are three farms, each of which is a square. The first contains 3,240 acres, the second 1,440 acres. The second and third extend along the south side of the first from one corner to the other, and one-half mile farther. What is the area?

Answer, 1,000 acres.

12. Describe and plat the following field notes:

BEARINGS.	CHAINS.
S. 46° 30' E.	20.
S. 51° 45' W.	13.80
W.	21.25
N. 56° W.	27.60
N. 33° 15' E.	18.80
S. 74° 30' E.	30.95

Containing 104.25+ acres.

FORMS OF DEEDS.

It is thought expedient, after having learned to describe and locate land, to give forms of deeds, mortgages, and abstracts. Every person should be able to discriminate between a valid and an invalid deed, mortgage, or abstract. Land has been shifted from one person to another until, often, the one in possession can not give a valid deed to his premises. Hence we should be aware of these things.

ADDENDA.

“FULL COVENANT WARRANTY DEED.”

FORM 1.

THIS INDENTURE, made this tenth day of August, in the year of our Lord one thousand eight hundred and ninety-three, between Jacob Brown and Marilla, his wife, both of Bentonville, Benton County, Arkansas, of the first part, and Roger Buckingham and James T. Ivan, both of Pea Ridge, Benton County, Arkansas, of the second part,

WITNESSETH, That the said party of the first part, in consideration of the sum of ten thousand dollars (\$10,000) to them duly paid, have sold, and by these presents do grant and convey to the said party of the second part, their heirs and assigns, a certain tract or parcel of land, situated, lying, and being in the County of Benton, in the State of Arkansas, and now particularly known and described as follows, to wit: The northeast quarter of the southwest quarter of section nine, in township nineteen north, range thirty west, containing forty acres, more or less, with the appurtenances, and all the estate, title, and interest therein of the said party of the first part. And the said Jacob Brown does hereby covenant and agree to and with the said party of the second part, his heirs and assigns, * that at the time of the ensembling and delivery of these presents he is the lawful owner, and is well seized of the premises above conveyed, free and clear from all incumbrances;* that the premises thus conveyed in the quiet

and peaceable possession of the said party of the second part, his heirs and assigns, he will forever warrant and defend against any person whomsoever lawfully claims the same, or any part thereof.

In witness whereof, the parties of the first part have hereunto set their hands and seals the day and year first above written.

Sealed and delivered in presence of

JACOB BROWN. [SEAL.]

MARILLA BROWN. [SEAL.]

STATE OF ARKANSAS, }
 County of Benton. } ^{ss.}

On the tenth day of August, in the year one thousand eight hundred and ninety-three, before me, the subscriber, personally appeared Jacob Brown and Marilla Brown, his wife, to me known to be the same persons described in and who executed the within instrument, and severally acknowledged that they executed the same; and the said Marilla Brown on a private examination by me, apart from her said husband, acknowledged that she executed the same freely, and without any fear or compulsion of her said husband.

WILLIAM STEPHENS,
Notary Public.

EXPLANATION.—If you will omit the part between the asterisks, you will have a plain “Warranty Deed.”

“QUIT-CLAIM DEED.”

FORM NO. 2.

THIS INDENTURE, made this twenty-fifth day of July, in the year of our Lord one thousand eight hundred and seventy-four, between W. T. Maxwell (unmarried), of the City of Bentonville, County of Benton, State of Arkansas, of the first part, and Cecil Moor, of the same place, of the second part,

WITNESSETH. That the said party, in consideration of the sum of four thousand dollars (\$4,000) to him in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, has bargained, sold, remised, and quit-claimed, and by these presents does bargain, sell, remise, and quit-claim unto the said party of the second part, and to his heirs and assigns forever, all the tract or parcel of land situated, lying, and being in the County of Benton, State of Arkansas, and is more particularly known and described as follows, to wit:

Beginning at a stake or stone at the southwest corner of section nine, township nineteen north, range thirty west, thence north 20° east 17.87 chains, thence north 30° east 8.40 chains, thence east 6.32 chains, thence south 10° east 19.20 chains, thence south 40° west 16.80 chains, thence north 50° west 12 chains to starting point, containing 38.72 acres of land, together with all and singular the hereditaments and appurtenances thereto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues, and profits thereof, and all the estate, right, title, interest, claim, and demand whatsoever of the said party of the first part, either in law or equity, of, in, and to the above bargained premises, with the said hereditaments and appurtenances, to have and to hold the said premises to the said party of the second part, his heirs and assigns, to the sole and only proper benefit and behoof of the said party of the second part, his heirs and assigns forever.

In witness whereof, the party of the first part has hereunto set his hand and seal the day and year first written above.

Sealed and delivered in the presence of

D. V. WALKER.

This must be acknowledged as form No. 1.

“REAL ESTATE MORTGAGE.”

A real estate mortgage is really the same in form as a deed, although we must have an additional statement of the amount secured, and the time and manner of its payments. We must give, also, the authority to sell if there be default in such payments and a clause to make it void if such payments be made.

We may insert the clauses just named in the above deeds and we have a real estate mortgage.

As law is the product of good common sense, to write a legal document would be to write with good judgment; that is, express the exact intentions of each party in the document. It will then harmonize with any law.

While business forms are good, a sound judgment is better.

It is seldom, in the United States, that a deed or mortgage must be written in a particular form of words, but they must be executed in a formal manner; that is, they must contain the requisites of a deed or mortgage.

The requisites are simply the parties' names, the consideration, words of conveyance, the property described; and the words certifying that the grantee is to have it.

“ABSTRACT.”

The following is a form of an abstract, a thing that every person should have before purchasing any piece or tract of land:

Abstract of Titles to E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 24, T. 22 N., R. 18 W., situated in Benton Co., in the State of Arkansas.

Sheet No. 1.

Grantor.

UNITED STATES
to
W. H. DENDING,
LELIA DENDING.
Grantee.

Date of Instrument—
Feb. 4, 1854.

Date of Filing—
March 7, 1854.

Deed, Record 4, Page 84.

Consideration—\$50.00.

Kind of Instrument—Warranty Deed.

DESCRIPTION.

E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 24, T. 32 N., R. 48 W.,
situated in Benton Co., in the State of Arkansas.

ACKNOWLEDGMENT.

State of Arkansas. County of Benton, before a Notary Public
within and for said county, appeared parties personally known.
Yes. Executed for purposes and consideration expressed, Yes.
Wife examined apart from husband, ----- Relinquished dower
for purposes expressed, ----- Freely and without compulsion or
undue influence, -----

JOHN F. GEYMAN,
Notary Public.

Sheet No. 2.

Grantor.

W. H. DENDING,
LELIA DENDING,
to
MARY E. STENNING.
Grantee.

80 *A Theoretical and Practical Treatise*

Date of Instrument—
May 23, 1868.

Date of Filing—
June 8, 1868.

Deed, Record 23, Page 354.

Consideration—\$2,864.00.

Kind of Instrument—Warranty Deed.

DESCRIPTION.

E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 24, T. 22 N., R. 18 W.,
situated in Benton Co., in the State of Arkansas.

ACKNOWLEDGMENT.

State of Arkansas, County of Benton, before a Notary Public
within and for said county, appeared parties personally known,
Yes. Executed for purposes and consideration expressed, Yes.
Wife examined apart from husband. Yes. Relinquished dower
for purposes expressed, Yes. Freely and without compulsion or
undue influence, Yes.

J. E. BOMAN,
Notary Public.

Sheet No. 3.

Grantor.

MARY E. STENNING

to

T. L. LENMAN,
LENNIE LENMAN.

Grantee.

Date of Instrument—
Jan. 1, 1870.

Date of Filing—
April 4, 1870.

Deed, Record 30, Page 18.

Consideration—\$3,000.00.

Kind of Instrument—Warranty Deed.

DESCRIPTION.

E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 24, T. 22 N., R. 18 W.,
situated in Benton County, in the State of Arkansas.

ACKNOWLEDGMENT.

State of Arkansas, County of Benton, before a Notary Public
within and for said county, appeared parties personally known.
Yes. Executed for purposes and consideration expressed, Yes.

J. M. LAILIA,
Notary Public.

Sheet No. 4.

Grantor.

T. L. LENMAN,
LENNIE LENMAN,
to
A. L. SPENCER.

Grantee.

Date of Instrument—
Aug. 25, 1884.

Date of Filing—
Aug. 30, 1884.

Mortgage, Record E. Page 142.

Consideration—\$250.00.

Kind of Instrument—Mortgage.

DESCRIPTION.

E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 24, T. 22 N., R. 18 W.,
situated in Benton Co., in the State of Arkansas.

(On back of Abstract it must be expressed that the mortgage
was paid, and when, and who the clerk was. etc.)

ACKNOWLEDGMENT.

State of Arkansas, County of Benton, before a County Clerk
within and for said county, appeared parties personally known,
Yes. Executed for purposes and consideration expressed, Yes.

82 *A Theoretical and Practical Treatise*

Wife examined apart from husband. Yes. Relinquished dower for purposes expressed, Yes. Freely and without compulsion or undue influence. Yes.

F. M. CANUS,
County Clerk.

Sheet No. 5.

Grantor.

T. L. LENMAN,
LENNIE LENMAN,
to
S. F. DABBLUM,
ENALIA M. DABBLUM.

Grantee.

Date of Instrument—
July 30, 1893.

Date of Filing—
Aug. 13, 1893.

Deed, Record 58. Page 222.

Consideration—\$3,500.00.

Kind of Instrument—Warranty Deed.

DESCRIPTION.

E. $\frac{1}{2}$ of N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$ of Sec. 24, T. 22 N., R. 18 W., situated in Benton Co., in the State of Arkansas.

(On back of Abstract it must be expressed that the mortgage was paid, and when, and who the clerk was, etc.)

ACKNOWLEDGMENT.

State of Arkansas, County of Benton, before a Notary Public within and for said county, appeared parties personally known, Yes. Executed for purposes and consideration expressed, Yes. Wife examined apart from husband. Yes. Relinquished dower for purposes expressed, Yes. Freely and without compulsion or undue influence, Yes.

J. I. NANNUS,
Notary Public.

Sheet No.

Grantor.

to

Grantee.

Date of Instrument—

Date of Filing—

Record ----- Page -----

Consideration—-----

Kind of Instrument—-----

DESCRIPTION.

ACKNOWLEDGMENT.

State of -----, County of ----- before a
----- within and for said county, appeared parties
personally known, ----- Executed for purposes and considera-
tion expressed, ----- Wife examined apart from husband, -----
Relinquished dower for purposes expressed, ----- Freely and
without compulsion or undue influence, -----

BENTONVILLE, ARK., Aug. 24, 1893.

This certifies that the foregoing sheets, from one to five inclusive, contain a complete Abstract of all instruments affecting the titles of the lands herein described, as the same appears of record in the Recorder's office of Benton County; and, upon investigation, we find no judgments or other liens affecting the title of said lands, except as herein stated.

There are no suits pending and no foreign executions, and the taxes of 1893 and all previous years are paid in full.

Abstracters.

LIST OF REAL ESTATE TO BE ASSESSED FOR TAXATION IN
BENTON COUNTY, ARK., 1894.

TOWNSHIP 19, RANGE 30.

Owner's Name.	Parts of Sections.		No. of Sec.	Area.	Valuation.	No. of School Dist.	Remarks.
T. J. Moran...	E $\frac{1}{2}$	NE $\frac{1}{4}$	1	80	\$ 500	20	-----
F. M. Fowler..	W $\frac{1}{2}$	NE $\frac{1}{4}$	1	80	550	20	-----
F. M. Fowler..	NW	NW	1	40	300	20	-----
G. W. Cooper..	S $\frac{1}{2}$	NW $\frac{1}{4}$	1	80	600	20	-----
G. W. Cooper..	NE $\frac{1}{4}$	NW $\frac{1}{4}$	1	40	400	20	-----
C. W. Parker..	SE $\frac{1}{4}$	-----	1	160	1,200	21	-----
A. Y. Jones...	SW $\frac{1}{4}$	-----	1	160	1,250	21	-----
J. F. Blocher..	NE $\frac{1}{4}$	-----	2	160	1,500	22	-----
J. I. Newton..	NE $\frac{1}{4}$	NE $\frac{1}{4}$	2	40	375	22	-----
N. L. Teller..	SE $\frac{1}{4}$	SE $\frac{1}{4}$	2	40	400	22	-----
J. R. Roberts..	W $\frac{1}{2}$	NE $\frac{1}{4}$	2	80	1,000	22	-----
A. L. Spencer..	NW $\frac{1}{4}$	-----	2	160	1,400	22	-----
D. V. Stewart..	S $\frac{1}{2}$	-----	2	320	2,100	22	-----
W. Collins....	E $\frac{1}{2}$	NE $\frac{1}{4}$	3	80	850	22	-----
N. T. Lowry..	W $\frac{1}{2}$	NE $\frac{1}{4}$	3	80	725	23	-----

We proceed in this manner with each successive section throughout each township in the county.

What would be the amount of each man's tax as assessed above at 2 $\frac{1}{2}$ per cent—what would be the sum?

The State law in regard to the teaching of the system of "United States Land Survey":

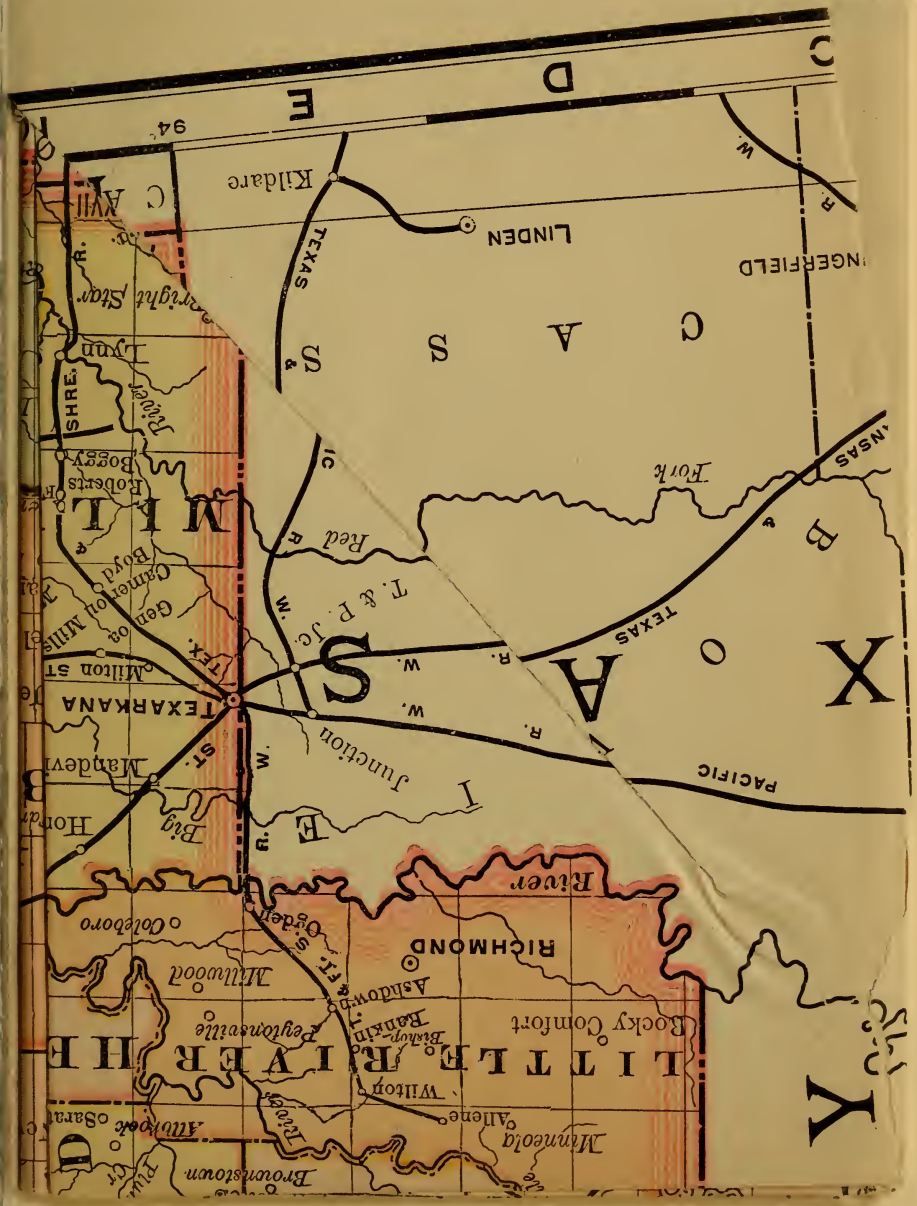
An Act requiring the method of reading and designating the survey of land of Arkansas by sections, parts of sections, townships, and ranges, to be taught in the public schools of Arkansas.

Be it Enacted by the General Assembly of the State of Arkansas:

SECTION 1. In addition to the branches now prescribed by law to be taught in the common schools of the State, it is hereby made the duty of the County Examiner of the several counties of this State to examine all persons applying for examination and license to teach in such schools as to their knowledge and proficiency in the method of designating and reading the survey of the land of this State by ranges, townships, and sections, and parts of sections, as surveyed, platted, and designated by the Government of the United States, and no such applicant shall be authorized or licensed to teach in any of such schools unless found, upon such examination, proficient in the method of designating and reading land survey as in this Act provided, and it is hereby made the duty, and specially imposed upon all persons teaching in the public schools of this State, to teach and impart the instructions here provided for whenever practicable to do so, and a willful neglect or failure to discharge the duties by this Act imposed shall be deemed sufficient cause for the revocation of license to teach.

SEC. 2. That this Act take effect and be in force three months after its passage and publication.

Approved, March, 1893.

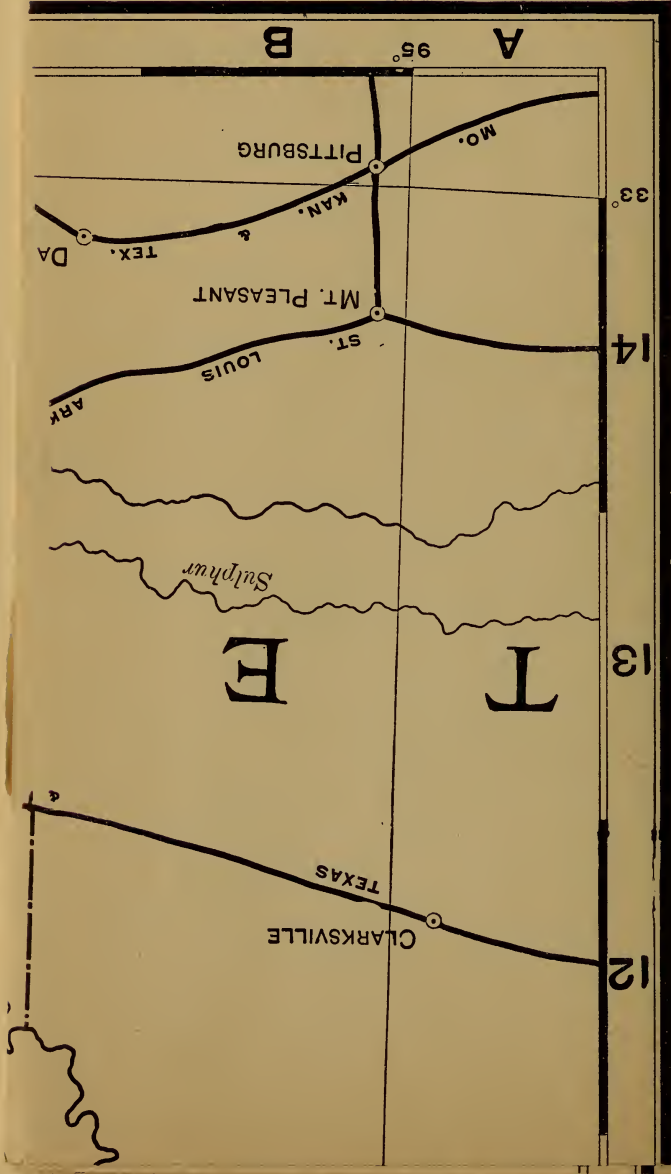




SCALES.
Statute Miles, 69.16 = 1 Degree.
Kilometres, 111.307 = 1 Degree.

TA 622

. B65



TA622
B65

PLAN OF THE LAND SURVEY OF THE UNITED STATES.

The Territory Governed by each Meridian is Colored Separately.



1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900

1901
1902
1903
1904
1905
1906
1907
1908
1909
1910

